MongoDB

NoSQL Datastore

NoSQL Landskab

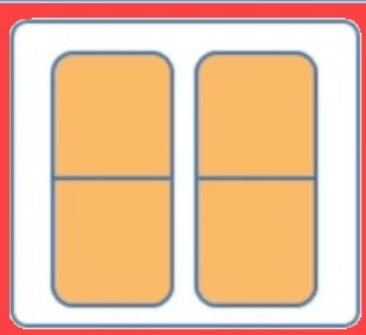
Key Value

Example:
Riak, Tokyo Cabinet, Redis server, Memcached, Scalaris

Document-Based

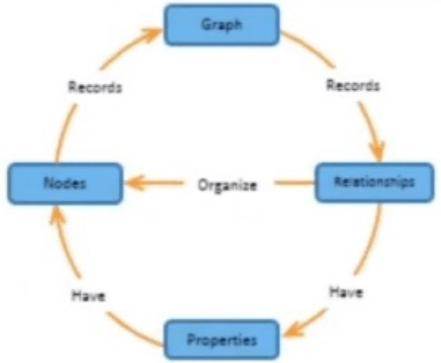
Example:
MongoDB, CouchDB, OrientDB, RavenDB

Column-Based

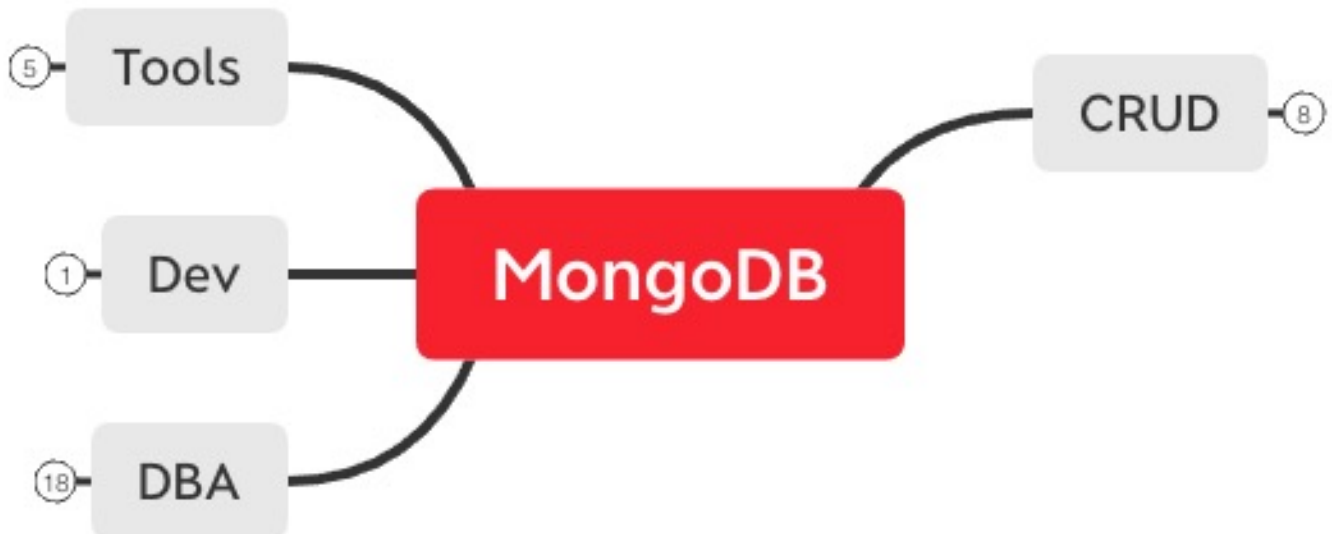


Example:
BigTable, Cassandra, Hbase, Hypertable

Graph-Based



Example:
Neo4J, InfoGrid, Infinite Graph, Flock DB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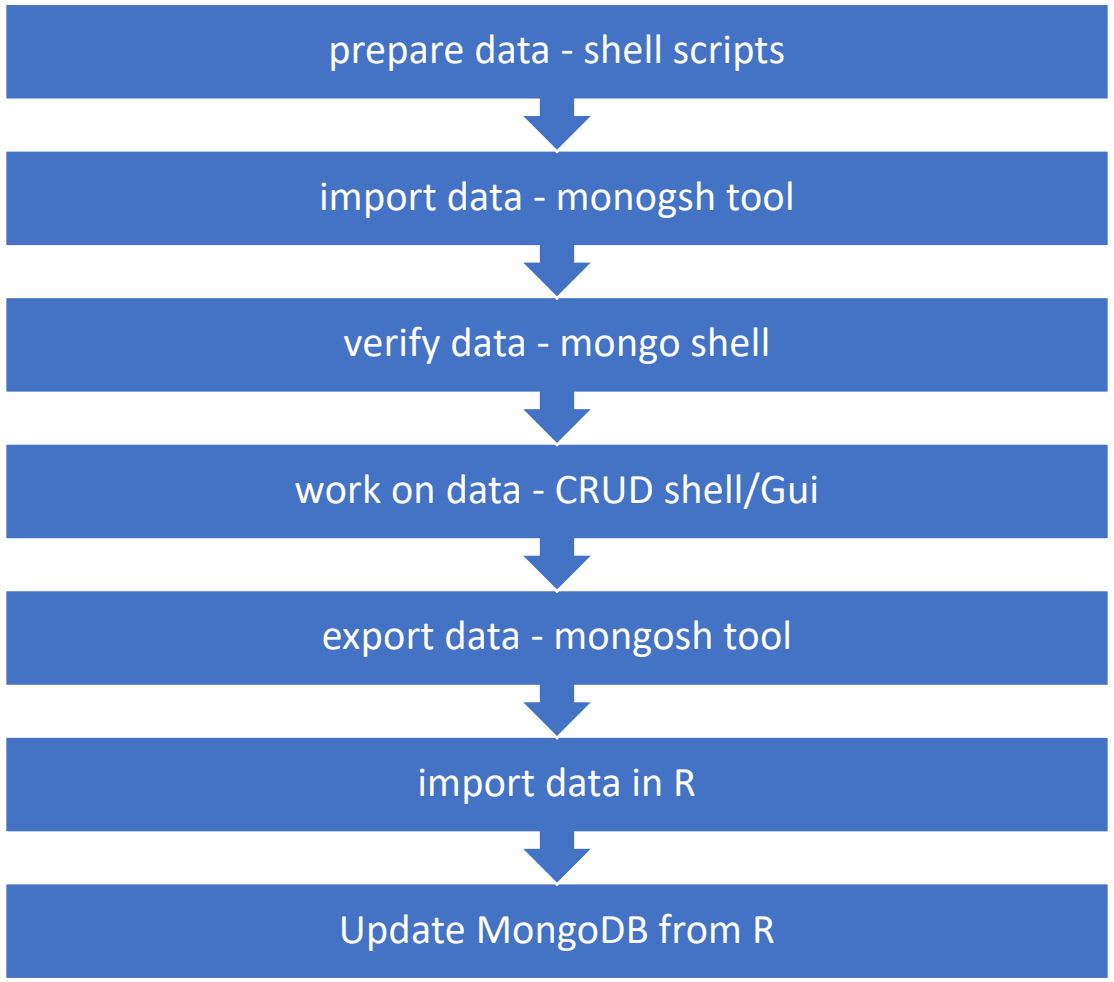
Flow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import data - monogsh tool
verify data - mongo shell
work on data - CRUD shell/Gui
export data - mongosh tool
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Update MongoDB from R

prepare data - shell scripts

```
#!/usr/bin/bash -x

find ./matches/* -type f | while read x
do
  grep -l female $x
done | while read x
do
  grep match_id $x
done | cut  -d\: -f2 |  cut -d\, -f1 | sort | uniq > listoffemgames
cat listoffemgames  | while  read x
do
  cp events/$x.json tmp
done
for i in tmp/*json; do sed -i 's/^\[//g' $i; done
for i in tmp/*json; do sed -i 's/^} \]/}/g' $i; done
for i in tmp/*json; do sed -i 's/^  \"id/  \"_id/g' $i;done
for i in tmp/*json; do sed -i 's/^}, {/}\n{/g' $i;done
#for i in *json;  do mongoimport -d statsbomb -c matches $i;done
```

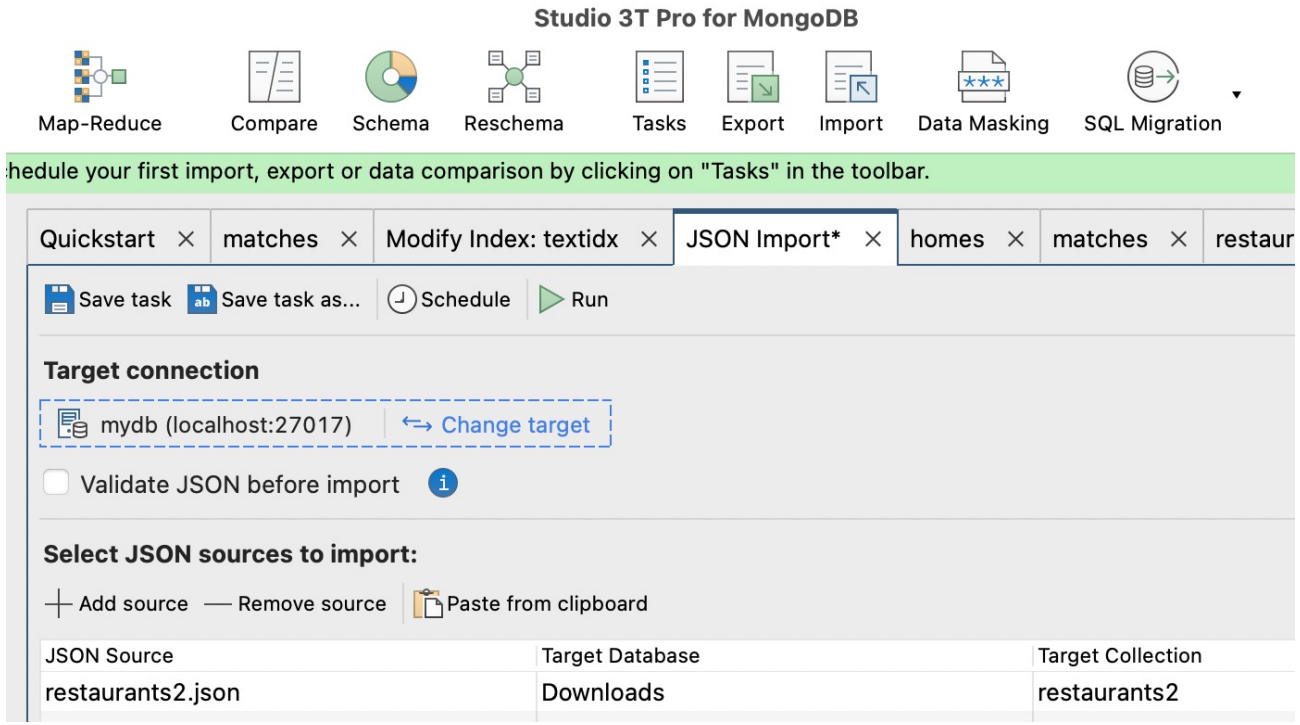
```
43440    shot : {
43441      statsbomb_xg : 0.05243506,
43442      end_location : [ 120.0, 43.5, 1.3 ],
43443      key_pass_id : b1986be3-960d-4a11-bb9
43444      outcome : {
             id : 97,
             name : Goal
           },
           type : {
             id : 87,
             name : Open Play
           },
           body_part : {
             id : 40,
             name : Right Foot
           },
           technique : {
             id : 95,
             name : Volley
           },
```

```
19796.json      2275106.json    3775579.json
(base) _____________________________________
| ~/Git/ML/statsbomb-open-data/data/tmp @ 1015
| => ls *json | wc
     326     326    4021
```

import data - monogsh tool

```
(base) ____________________________________________________________________________
| ~/Downloads @ 10153-62 (thor)
| => mongoimport -d sales2 -c sales2 --jsonArray dumssp.json
2022-03-05T09:35:18.690+0100    connected to: mongodb://localhost/
2022-03-05T09:35:19.122+0100    5000 document(s) imported successfully. 0 document(s) failed
```

Or GUI



verify data - mongo shell

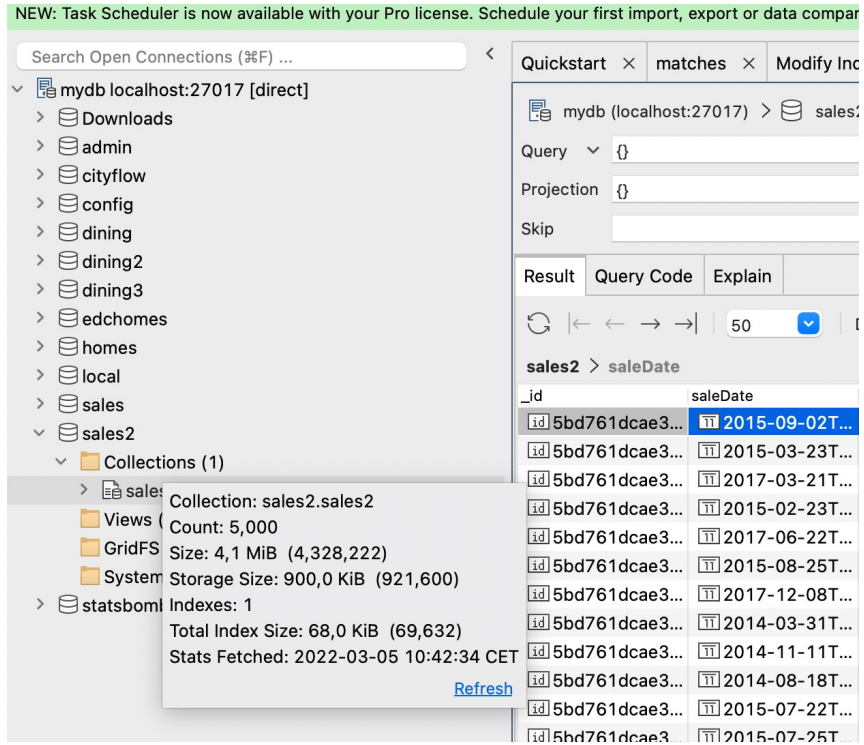
```
| => mongosh
Current Mongosh Log ID: 62232ffda2c0a03e1fa4584f
Connecting to:          mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTime
1.1.9
Using MongoDB:          5.0.3
Using Mongosh:          1.1.9

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

------
   The server generated these startup warnings when booting:
   2022-03-05T09:31:48.016+01:00: Access control is not enabled for the database. Read and w
figuration is unrestricted
------

Warning: Found ~/.mongorc.js, but not ~/.mongoshrc.js. ~/.mongorc.js will not be loaded.
  You may want to copy or rename ~/.mongorc.js to ~/.mongoshrc.js.
test> show dbs
Downloads   684 kB
admin        41 kB
cityflow   35.7 MB
config     36.9 kB
dining      668 kB
dining2     664 kB
dining3     664 kB
edchomes   2.29 MB
homes       360 kB
local      73.7 kB
sales       991 kB
sales2      991 kB
statsbomb   476 MB
test> use sales2
switched to db sales2
sales2> show collections
sales2
sales2> db.sales2.findOne()
{
  _id: ObjectId("5bd761dcae323e45a93ccfed"),
  saleDate: ISODate("2015-09-02T16:11:59.565Z"),
  items: [
    {
      name: 'binder',
      tags: [ 'school', 'general', 'organization' ],
      price: Decimal128("13.44"),
      quantity: 8
    },
    {
      name: 'binder',
      tags: [ 'school', 'general', 'organization' ],
      price: Decimal128("16.66"),
      quantity: 10
    }
  ],
  storeLocation: 'London',
  customer: { gender: 'M', age: 44, email: 'owtar@pu.cd', satisfaction: 2 },
  couponUsed: false,
  purchaseMethod: 'In store'
}
sales2>
```

Or GUI



work on data - CRUD shell/Gui

```
sales2> db.sales2.find({"storeLocation":/Lond/},{"storeLocation":1,"items.quantity":1,saleDate:1,_id:0}).limit(2)
[
  {
    saleDate: ISODate("2014-11-11T02:13:51.893Z"),
    items: [
      { quantity: 4 },
      { quantity: 7 },
      { quantity: 5 },
      { quantity: 5 },
      { quantity: 3 },
      { quantity: 5 },
      { quantity: 1 },
      { quantity: 2 },
      { quantity: 3 },
      { quantity: 1 }
    ],
    storeLocation: 'London'
  },
sales2> db.sales2.find({"storeLocation":/Lond/},{"storeLocation":1,max:{$max:"$items.quantity"},saleDate:1, _id:0}).limit(2)
[
  {
    saleDate: ISODate("2014-11-11T02:13:51.893Z"),
    storeLocation: 'London',
    max: 7
  },

sales2> db.sales2.updateOne({_id:ObjectId("5bd761dcae323e45a93ccff3")},{$set:{storeLocation:"Nyborg"}})
```

export data - mongodb tool

```
| => mongoexport -v --collection=sales --db=sales -q='{"storeLocation":"London"}' --pretty --jsonArray --out dumplondon.json
2022-03-05T12:44:49.136+0100    will listen for SIGTERM, SIGINT, and SIGKILL
2022-03-05T12:44:49.142+0100    connected to: mongodb://localhost/
2022-03-05T12:44:49.242+0100    exported 794 records
```

```
| => head dumplondon.json
[{
        "_id": {
                "$oid": "5bd761dcae323e45a93ccfed"
        },
        "saleDate": {
                "$date": "2015-09-02T16:11:59.565Z"
        },
        "items": [
                {
                        "name": "binder",
```

export data - mongodb tool

```
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2022-03-05T12:44:49.136+0100    will listen for SIGTERM, SIGINT, and SIGKILL
2022-03-05T12:44:49.142+0100    connected to: mongodb://localhost/
2022-03-05T12:44:49.242+0100    exported 794 records
```
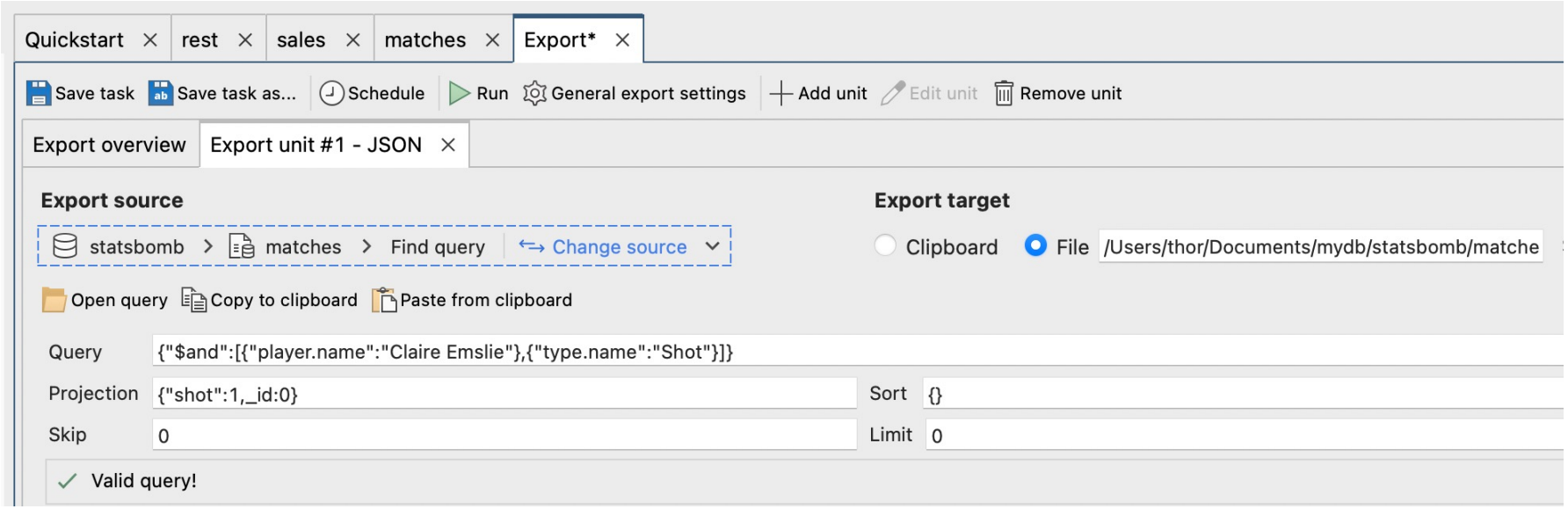
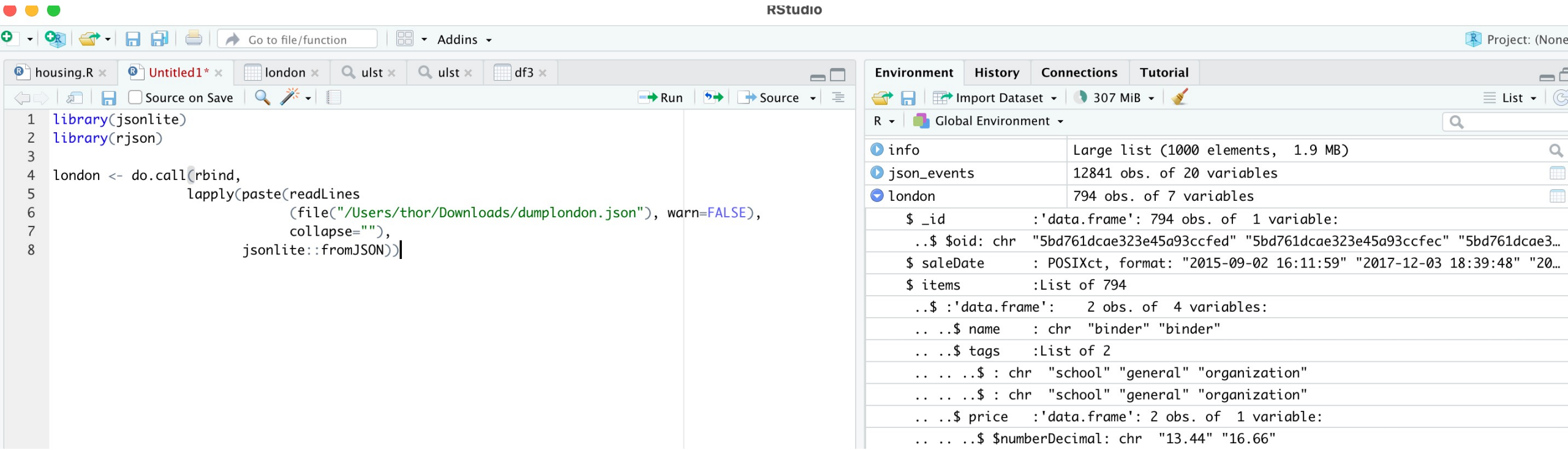

```
mongoexport --db=statsbomb --collection=matches --query='{"player.name":{ "$in": ["Claire Emslie","Lucy Graham"]}}' --out dump.json
```

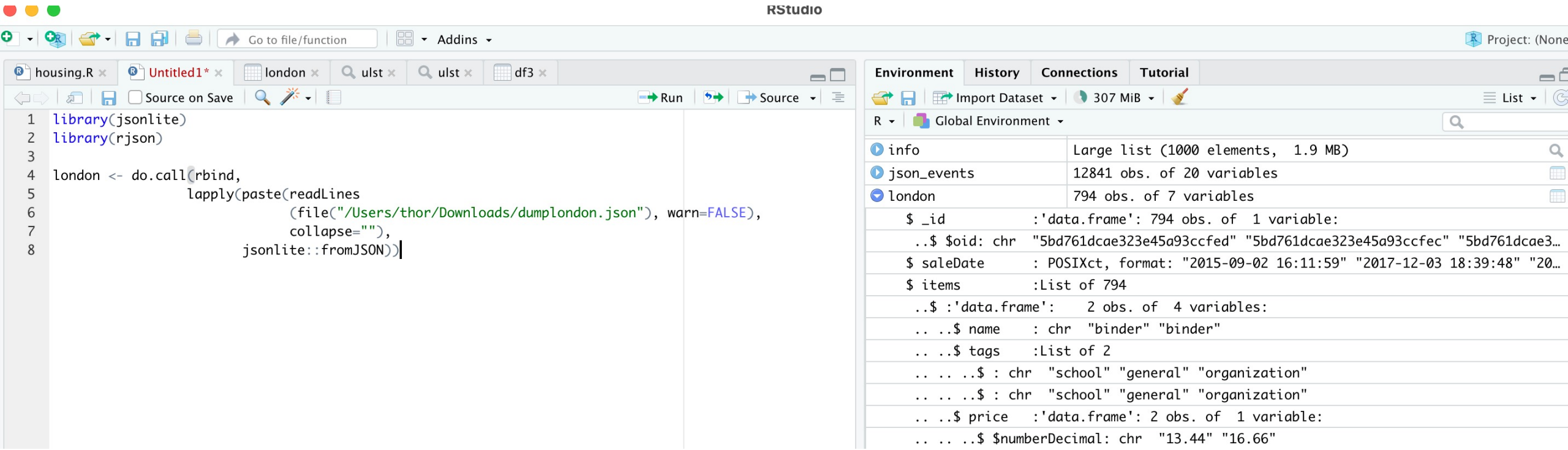
Or GUI



import data in R



import data in R



Update MongoDB from Python

IDE

Terminal

```
db = connect( 'mongodb://localhost/statsbomb' );
db.matches.bulkWrite( [
  { updateOne :
    {
    "filter" : { "_id" : "e434c006-2121-4f63-ab5a-b5d19cf75560" },
    "update" : { $set : { "distance" : 12 } }
    }
  }
] )
```

```
| => mongosh --quiet --nodb -f x.js
```

```
newdf=df4[['dist','angle','_id']]
updates=[]
for _, row in newdf.iterrows():
    query="{ updateOne : { \"filter\": { \"_id\" : \""+row.get('_id')+"\
    updates.append(query)
 db.matches.bulk_write(updates[:1],bypass_document_validation=False)
```

```
, 35 ],
0172, name: 'Jill Scott' },
 13, name: 'Right Center Midfield' },
        }
      ]
    },
    gender: { id: 0, name: 'female' },
    distance: 12
  }
]
statsbomb> db.matches.find({_id:"e434c006-2121-4f63-ab5a-b5d19cf75560"})
```

Update MongoDB from R

https://jeroen.github.io/mongolite/

```
g.R × | ulst × | ulst × | Untitled1* × | df3 × | london × | Mongo_Rest.R ×
Source on Save
```

```r
library(mongolite)

con <-mongo(
  collection = "rest",
  db = "dining2",
  url = "mongodb://localhost",
  verbose = TRUE
)

restorig <- con$find(limit=10)

numt=2
for (i in 1:ncol(rests)) {
  numt<-numt*0.95
  rests[i,"Viggo"]=numt[1]
}

for (i in 1:ncol(rests)) {
  key <- rests[i,6]
  val <- rests[i,9]
  con$update(
    query=paste0('{"restaurant_id": "',key,'"}'),
    update=paste0('{"$set":{"lbl": "',val,'"}}')
  )
}
```

restorig	10 obs. of 8 variables
rests	10 obs. of 9 variables

From mongo

name	restaurant_id	age	lbl
Wendy'S	30112340	30112340	kurt
Wilken'S Fine Food	40356483	30112340	kurt
Brunos On The Boulevard	40356151	30112340	kurt
Riviera Caterer	40356018	30112340	kurt
Kosher Island	40356442	30112340	kurt
Taste The Tropics Ice Cream	40356731	30112340	kurt
Regina Caterers	40356649	30112340	kurt
Dj Reynolds Pub And Restaurant	30191841	30112340	NA
Morris Park Bake Shop	30075445	30112340	NA
May May Kitchen	40358429	30112340	NA

Modif dataframe

Update mongi via R

name	restaurant_id	age	lbl	Viggo
Wendy'S	30112340	30112340	kurt	1.900000
Wilken'S Fine Food	40356483	30112340	kurt	1.805000
Brunos On The Boulevard	40356151	30112340	kurt	1.714750
Riviera Caterer	40356018	30112340	kurt	1.629012
Kosher Island	40356442	30112340	kurt	1.547562
Taste The Tropics Ice Cream	40356731	30112340	kurt	1.470184
Regina Caterers	40356649	30112340	kurt	1.396675
Dj Reynolds Pub And Restaurant	30191841	30112340	NA	1.326841
Morris Park Bake Shop	30075445	30112340	NA	NA
May May Kitchen	40358429	30112340	NA	NA